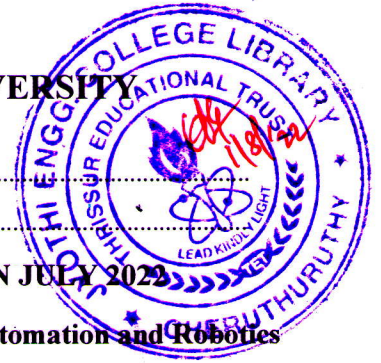


**APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY
08 PALAKKAD CLUSTER**



Q. P. Code: IAR0822232-I

(Pages: 2)

Name:

Reg. No:

SECOND SEMESTER M.TECH. DEGREE EXAMINATION JULY 2022

Branch: Mechanical Engineering

Specialization: Industrial Automation and Robotics

08ME6332 CONTROL, PROGRAMMING AND CALIBRATION OF ROBOTS

Time: 3 Hours

Max. Marks: 60

Answer all six questions.

Modules 1 to 6: Part 'a' of each question is compulsory and answer either part 'b' or part 'c' of each question.

Q. No.	Module 1	Marks
1. a	Discuss in detail about Passivity based position control.	3
	Answer b or c	
b	Discuss in detail about hybrid position and force control.	6
c	Explain in detail about BLDC motor with necessary diagram.	6
Q. No.	Module 2	Marks
2. a	Discuss about control of a mobile robot to move to follow a path.	3
	Answer b or c	
b	Explain in detail about Kinematic model of differentially driven robot.	6
c	Discuss in detail about control of mobile robot.	6
Q. No.	Module 3	Marks
3. a	Discuss in detail about Pose estimation.	3
	Answer b or c	
b	Discuss in detail about status sensors and quality control sensors.	6
c	Discuss in detail about configuration of vision based control.	6

Q. No.	Module 4	Marks
4. a	Write RAPID language basic commands with description.	3
Answer b or c		
b	Elaborate in detail about reachability, editing and debugging.	6
c	Discuss in detail about ROS.	6

Q. No.	Module 5	Marks
5. a	Describe in detail about trajectory tracking.	4
Answer b or c		
b	Discuss in detail about map-based navigation with relevant diagram.	8
c	Discuss in detail about Dead reckoning and Monte-Carlo Localization.	8

Q. No.	Module 6	Marks
6. a	Explain in detail about identification and correction of Robot.	4
Answer b or c		
b	Explain about Manual Calibration and Bulls eye.	8
c	Design a control of Robot using Matlab programming.	8
